

## Two new species of the spider genus *Tmarus* Simon 1875 (Araneae: Thomisidae) from China

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**Abstract** — Two new species of the crab-spider genus *Tmarus* collected from Hengduan Mountains, Yunnan, China, are described under the names: *T. digitiformis* new species, *T. serratus* new species.

**Key words** — Araneae, Thomisidae, *Tmarus*, new species, China.

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Thomisidae is one of the largest spider families with more than 2000 species of 164 genera from the world (Platnick 2005). Of these, 120 species of 29 genera have been known from China. The first two pairs of legs of thomisids are longer than the others and they can move not only forwards and backwards, but also sideways. They commonly inhabit the flowers of the grasses and shrubs. The body coloration consists generally with its living environment.

Spiders of the genus *Tmarus* can be easily distinguished from other thomisid genera by the combination of following characteristics: carapace with long setae; tubercle of lateral eyes developed and closed to each other, lateral eyes larger than median eyes; cheliceral tooth absent; bulb simple and without apophysis, embolus commonly short and thick; abdomen pyriform, the posterior end occasionally extending beyond spinnerets; epigynum usually with a median hood, copulatory ducts short and thick, spermathecae small, global, oval or reniform (Ono 1988: 53).

The genus *Tmarus* was erected by Simon in 1875. At present, it is the second largest genus of family Thomisidae, including 210 species from all over the world (Ono 1996, 1997; Song et al. 1999; Yin et al. 2004; Platnick 2005). Although fifteen species of the genus have been described from China up to the present (Song & Zhu 1997; Song et al. 1999; Yin et al. 2004; Platnick 2005; Zhu et al. in press), only one species, *T. menglae* Song & Zhao 1994 was known from Yunnan Province.

During the examination of specimens collected from Yunnan, China, two new species of spider genus *Tmarus*, are found and described here under the names, *T. digitiformis* new species, and *T. serratus* new species.

Type specimens are deposited in the Museum of Hebei University (MHBUS). The measurements of legs are described as follow: total length (femur, patella plus tibia, metatarsus, tarsus). All measurements given are in

millimeters.

Abbreviations used in this paper: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye; MOA, median ocular area; VTA, ventral tibial apophysis; ITA, intermediate tibial apophysis; RTA, retrolateral tibial apophysis; DTA, dorsal tibial apophysis.

### *Tmarus digitiformis* new species

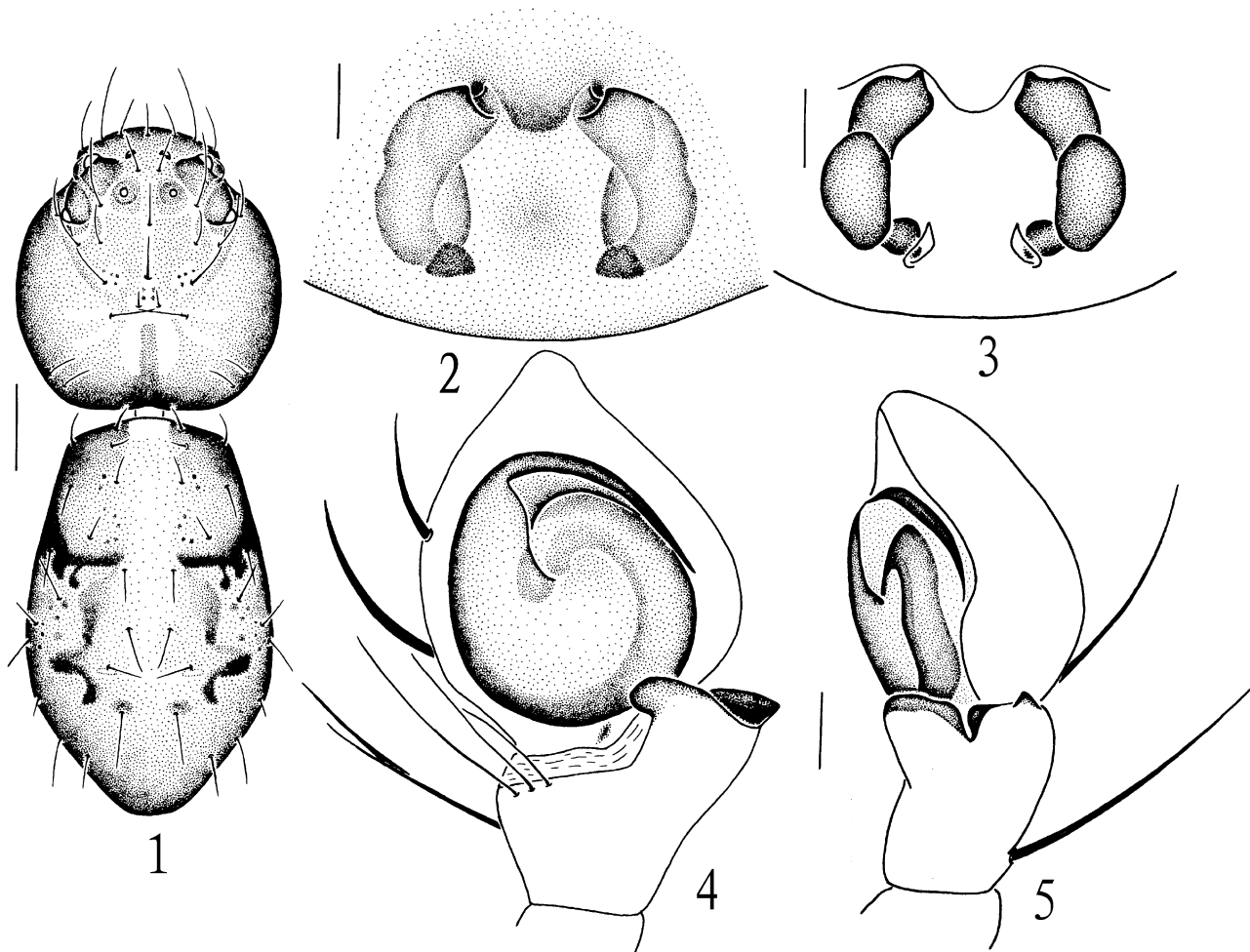
Figs. 1–5

**Types.** Male holotype from Fengyi Town (25°35'N, 100°18'E), Dali City, Alt. 2050 m, Yunnan Province, China, 21 May 2002, collected by Zi-Zhong Yang; paratypes: 1 female (used drawing) from Xiaguan Town (25°30'N, 100°18'E), Dali City, Yunnan Province, China, 30 May 2002, collected by Zi-Zhong Yang; 1 female from Diancang Mts. (25°58'N, 99°52'E), Dali City, Yunnan Province, China, 26 June 2005, collected by Yu-Long Wang.

**Etymology.** The specific name refers to the shape of VTA.

**Diagnosis.** The new species is similar to *Tmarus longqicus* Song & Zhu 1993 (Song & Zhu 1993: 881, fig. 55; 1997: 48, fig. 25), but differs from the latter by: (1) RTA of the male palp small and dentiform (Fig. 5); (2) different shape of the basal embolus; (3) different shape of spermatheca (Fig. 3).

**Description.** Male (holotype). Body length 3.95: cephalothorax 1.65 long, 1.65 wide; abdomen 2.35 long, 1.43 wide. Carapace length equal to width, brown, dorsum with conjugated long spiniform hairs, and a pair of reniform grayish patterns centrally. Eye size: AME 0.05, ALE 0.18, PME 0.08, PLE 0.13. Distance: AME - AME 0.17, AME - ALE 0.15, PME - PME 0.28, PME - PLE 0.33, ALE - PLE 0.23. MOA 0.35 long, front width 0.28, back width 0.38. Clypeus height 0.25. Chelicerae grayish, each with a long



**Figs. 1–5.** *Tmarus digitiformis* new species. 1. Male (holotype) body, dorsal view. 2–3, Epigynum: 2, ventral view; 3, dorsal view. 4–5, Male left palp: 4, ventral view; 5, retrolateral view. (Scales for Fig. 1, 0.5 mm; for Figs. 2–5, 0.1 mm)

spiniform hair prolaterally. Maxilla grayish, with some setae. Legs chestnut, with a few brown spots. Femora I - IV each with three dorsal spines, I - II each with three prolateral spines, I with three retrolateral spines, II with two retrolateral spines, III with one prolateral spine; patellae I - IV each with two dorsal spines, one prolateral and retrolateral spine; tibiae I - IV each with two dorsal spines, I - II each with three prolateral and retrolateral spines, two pairs of ventral spines, III - IV each with one prolateral and retrolateral spines, a pair of ventral spine; metatarsi I - II each with two prolateral and retrolateral spines, III - IV each with two prolateral and retrolateral spines, a pair of ventral spines. Abdomen brown dorsally, with some long spiniform setae and grayish spots. Ventral median areas with a broad grayish longitudinal stripe. Measurements of legs: leg I 8.84 (2.64, 3.10, 2.01, 1.09), II 8.81 (2.64, 3.07, 2.01, 1.09), III 4.60 (1.42, 1.65, 0.88, 0.65), IV 4.76 (1.55, 1.70, 0.88, 0.63). Leg formula: 1243. Male palp as shown in Figs. 4–5. Tibia with two apophyses: VTA thick, short and digitiform; RTA small and dentiform. Embolus thick and pointed.

*Female.* Body length 4.69; cephalothorax 2.04 long, 1.89

wide; abdomen 2.75 long, 1.63 wide. Eye size: AME 0.05, PME 0.08, PLE 0.10, ALE 0.15. AME - AME 0.20, AME - ALE 0.20, ALE - PLE 0.30, PME - PME 0.30, PME - PLE 0.38. MOA 0.40 long, front width 0.66, back width 0.92. Clypeus high 0.35. Femora I - II each with one dorsal spine, I with three prolateral spines, two retrolateral spines, II with two prolateral spines, one retrolateral spine, III with two dorsal spines, one prolateral spine; patellae I - IV each with two dorsal spines; tibiae I - IV each with two dorsal spines, I - II each with three prolateral and retrolateral spines, five pairs of ventral spines, III - IV each with two prolateral and retrolateral spines, a pair of ventral spine; metatarsi I - II each with two prolateral and retrolateral spines, III - IV each with two prolateral and retrolateral spines, two pairs of ventral spines. Measurements of legs: leg I 8.48 (2.51, 2.97, 1.75, 1.25), II 8.15 (2.51, 2.79, 1.75, 0.92), III 4.30 (1.49, 1.62, 0.73, 0.46), IV 4.76 (1.72, 1.62, 0.89, 0.53). Leg formula: 1243. Epigyne as shown in Figs. 2–3, without remarkable margins; copulatory ducts short, each spermatheca with two cavities, and connected each other.

**Distribution.** Yunnan (known only from the type locality, Dali City).

***Tmarus serratus* new species**

Figs. 6–8

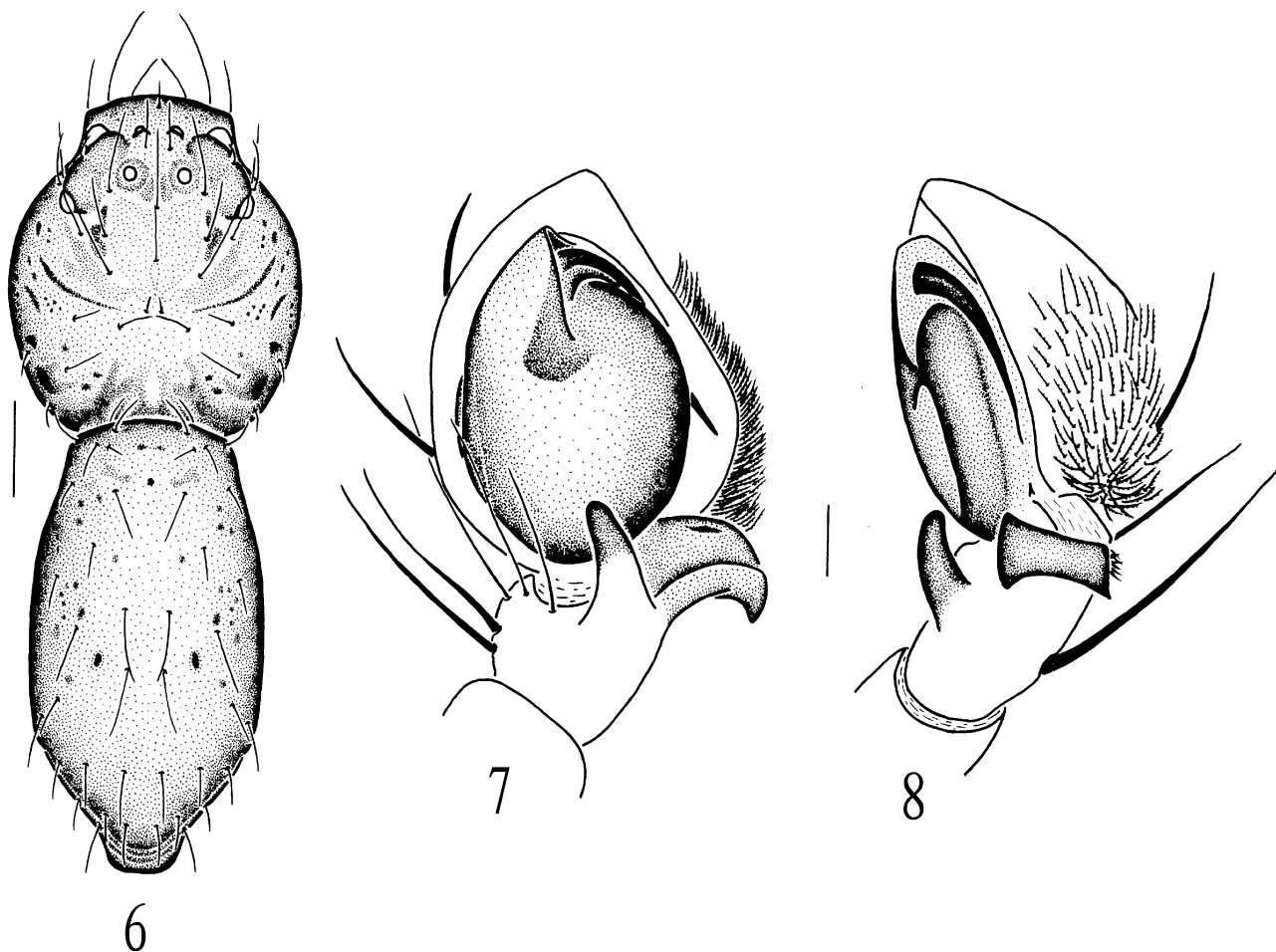
**Types.** Male (holotype) from Diancang Mts. (25°58'N, 99°52'E), Alt. 2050 m, Dali City, Yunnan Province, China, 12 June 2005; paratype 1 male from Fengyi Town (25°35'N, 100°18'E), Alt. 2050 m, Dali City, Yunnan Province, China, 21 May 2002 collected by Zi-Zhong Yang.

**Etymology.** The specific name refers to the serrated hairs of the basal cymbium dorsolaterally.

**Diagnosis.** This new species is similar to *Tmarus taibaiensis* Song & Wang 1994 (Song & Wang 1994: p. 47, fig. 2), but differs from the latter by: (1) the basal cymbium dorsolaterally of male palp with a lot of serrated hairs, but in the latter absent; (2) palpal VTA digitiform, terminal straight, the latter bend; (3) palpal ITA linguiform and terminally flattened instead of hooked; (4) embolus with smooth base.

**Description.** Male (holotype). Body length 4.18: cepha-

lothorax 1.79 long, 1.73 wide; abdomen 2.55 long, 1.48 wide. Carapace chestnut, with a lot of grayish patterns, and dorsum with conjugated long spiniform hairs. Eye size: AME 0.05, PME 0.08, PLE 0.13, ALE 0.15. Distance AME - ALE 0.13, AME - PME 0.15, ALE - PLE 0.23, PME - PME 0.23, PME - PLE 0.33, base of tubercles of lateral eyes connected. MOA 0.38 long, front width 0.25, back width 0.38. Clypeus 0.38 high. Chelicerae grayish, dorsum with a long and short spiniform setae. Maxilla grayish, longer than wide. Labium grayish, long two times the wide. Sternum grayish, with some setae. Legs chestnut. Femora I - IV each with four dorsal spines, I - II with three prolateral spines, III - IV with one retrolateral spine, III with one retrolateral spine; patellae I - IV each with two dorsal spines, I with one prolateral and retrolateral spine; tibiae I - IV each with two dorsal spines, I - II each with three prolateral and retrolateral spines, three pairs of ventral spines, III - IV each with two prolateral and retrolateral spines, two pairs of ventral spines; metatarsus I - II each with two prolateral and retrolateral spines, three pairs of ventral spines, two prolateral and retrolateral spines, a pair of ventral spine. Abdomen grayish, dorsum with brown



**Figs. 6–8.** *Tmarus serratus* new species. 6. male (holotype) body, dorsal view. 7–8, male left palp: 7, ventral view; 8, retrolateral view. (Scales for Fig. 6, 0.5 mm; for Figs. 7–8, 0.1 mm)

spots, furnished with some long spiniform setae and grayish spots, terminal of posterior half part hunched; median areas of the venter with a broad grayish longitudinal stripe. Measurements of legs: leg I 9.12 (2.70, 3.16, 2.14, 1.12), II 9.07 (2.70, 3.16, 2.14, 1.07), III 4.57 (1.42, 1.68, 0.86, 0.61), IV 4.78 (1.68, 1.63, 0.86, 0.61). Leg formula: 1243. Male palp as shown in Figs. 7–8. Tibia with VTA, ITA and RTA: VTA digitiform; ITA linguiform and terminal flattened; RTA small, terminal with some short setae; embolus long. The basal cymbium dorsolateral with serrated hairs.

*Female.* Unknown.

*Distribution.* Yunnan (known only from the type locality, Dali City)

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#### References

- Ono, H. 1988. A Revisional Study of the Spider Family Thomisidae (Arachnida, Araneae) of Japan. National Science Museum, Tokyo, 252 pp.
- Ono, H. 1996. New records of two Korean species of the spider families Mimetidae and Thomisidae (Araneae) from Japan. *Acta Arachnol.*, 45: 19–24.
- Ono, H. 1997. New species of the genera *Ryuthela* and *Tmarus* (Araneae, Liphistiidae and Thomisidae) from the Ryukyu Islands, southwest Japan. *Bull. Nat. Sci. Mus., Tokyo*, (A) 23: 149–163.
- Platnick, N. I., 2005. The world spider catalog, version 6.0. American Museum of Natural History, online at <http://research.amnh.org/entomology/spiders/catalog/index.html> (Accessed 23 Aug. 2005).
- Song, D. X. & Chai, J. Y. 1990. Notes of some species of the family Thomisidae (Arachnida: Araneae) from Wuling Shan Area. pp. 364–374. In: Zhao, E.M. (ed.), *From Water onto Land*. C.S.S.A.R., Beijing
- Song, D. X. & Wang, X. P. 1994. Three new species of the family Thomisidae from Shaanxi, China (Araneae). *Acta Zool. Sinica*, 19: 46–50.
- Song, D. X. & Zhao, J. Z. 1994. Four new species of crab spiders from China. *Acta Arachnol. Sinica*, 3: 113–118.
- Song, D. X. & Zhu, M. S. 1997. *Fauna Sinica: Arachnida: Araneae: Thomisidae, Philodromidae*. Science Press, Beijing, pp. 34–58.
- Song, D. X., Zhu, M. S. & Chen, J. 1999. Genus *Tmarus* Simon, 1875. pp. 487–516. In: *the Spiders of China*. Hebei Science Technological Publishing House, Shijiazhuang.
- Yin C. M., Peng, J. X. & Gong, L. S. 2004. Two new species of the *Tmarus* (Araneae, Thomisidae) from China. *Korean Arachnol.*, 20(1): 13–19.
- Zhu M. S., Zhang Z. S. & Chen H. M. A New Species of the Genus *Tmarus* from China (Araneae: Thomisidae). *J. Hebei Univ. (Nat. Sci. Ed.)*, in press.

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